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BOTANICAL GLEANINGS IN MICHIGAN, VI.

Oliver Atkins Farwell

The season of 1928 was very backward. April was cold and rather dry for that month, the precipitation being far below the average, as was the temperature. The appearance of the seasonal vegetative growth was probably the latest in many years. On May 10, Mr. Billington drove us down to Tecumseh for our first outing of the year. Some of the earliest flowers of spring were out but not in great profusion. The following were observed: Blood Root, Spring Beauty, Purple Cress, the common Blue Violet, Yellow Violet, Wood Rush, etc. The principal object of the excursion was to hunt for *Viola dasyneura* Greene. Only a few specimens of a yellow violet were found. Dr. F. V. Coville, of Washington, D. C., courteously consented to have them compared with the type specimens and Mr. S. F. Blake reports that they are of the same species and that the only difference is that the type specimens are a little more mature. He also confirms my suggestion that the species is only a form of *V. scabriuscula* with glabrous capsules. It therefore becomes a synonym of *Viola pubescens* var. *scabriuscala* f. *leiocarpa*. Just after collecting the violet we passed within two feet of a pheasant sitting on her nest, without disturbing her, although we stopped and watched her for a minute or two. Rain had been threatening for some time but fortunately it held off until after our botanizing was over.

We had a good day on May 23, which was signalized by the discovery of a plant not before reported, in so far as our knowledge goes, for the continent of North America, i. e., *Veronica Dillenii* Crantz. It was found to be well distributed over the country for miles around, and evidently has been there for many years. *Rubus neglectus*, not yet in flower, was found in abundance in a small, swampy copse about an acre in extent. Here also in great profusion is *Arisaema triphyllum* var. *viride*. The typical form with a purple spathe is conspicuous by its absence; only three plants of it were observed. *Cornus circinata* is quite frequent here also, at least for this species, which is more solitary in habit than gregarius. *Syndesmon Thalictroides* var. *biternatum* was most abundant here and was scattered by the thousands throughout the woods of this region.

On the 27th of June and the 11th of July, we botanized the district between Ann Arbor and Dexter. Here we found a new station for *Sonchus arvenis* var. *glabrescens* (No. 8232). The most interesting find is a repent perennial species of *Centaurea*. The scale appendages are not darkened, and are gradually narrowed, and pass into the innermost, long, acuminate scales; both the back and the margins are clothed with long, flexible, appressed, pale hairs. It agrees with Jepson's description of *C. repens* Linn as found in his Manual . . . of California, with the exception of the insertion of the achene; in our plant the achene is laterally attached. Mr. S. F. Blake confirmed the identification, but thinks it should be known as *C. Picris* Pall., as he is not yet satisfied that it is identical with *C. repens* Linn. *Allium cernuum* Roth is abundant between Ypsilanti and Dexter. Our manuals state that the umbel is nodding in flower. Observation shows that the scape is not erect from the beginning, but remains curved like an inverted u (n) during the period of its growth. About the time the spathe is ready to release the umbel, the scape rapidly but gradually straightens out. In most plants the curve is still present at the time of flowering and the umbel is in a horizontal position, or rarely

recurved; in some plants the curve of the scape is obliterated and the umbel is erect.

On July 18, we botanized the West Branch of Paint Creek, running through the old Hammond farm in the southern part of Ypsilanti township. Years ago this section was well wooded; but now the land is cleared and a part of it is being converted into the ubiquitous golf course. *Plantago cordata* was collected here by the author in 1891, and this trip was made especially to relocate the species if possible, but without avail. Within the last few years, many stations for species rare or interesting in Michigan have been utterly wiped out by the reclaiming of lands for the varied purposes of our strenuous civilization.

On July 25, we covered the region around Hamburg and Lakeland. Both Yellow and White Pond Lilies were in full bloom. On dry, sandy uplands we found *Hieracium longipilum, Silene dichotomum* (No. 8245) and *Physalis subglabrata* (No. 8246). In meadows were *Habenaria psycodes* (No. 7283) and *Lilium Michiganese* var. *umbelliferum* (No. 7252) with the flowers varying from dark red to orange yellow and with stems from purplish spotted and not at all glaucous to green and conspicuously glaucous. On the borders of lakes and swamps, the most interesting plants were *Polygonum Hartwrightii* (No. 8248) and *Asclepias pulchra.* Mr. Gladewitz found on the railroad banks at Lakeland some *Euphorbia marginata* which had escaped from a nearby garden.

An auto drive through Ontonagon Co. in late August brought to light an abundance of the Garden Orpine (*Sedum Telephium* Linn, var. *purpureum* Linn) in full bloom along the roadsides. Ill health cut the summer's field work short in August.

Where the year is not given, it is to be understood that Gladewitz and Farwell are the collectors and the year 1928.

Panicularia nervata (Willd.) O. K., var. *purpurascens* Farwell. In this variety the sheaths are also purple and the lower blades more or less so; the culms and uppermost blades

are green. Collected at Pinconning, by Mr. R. R. Dreisbach, No. 4897, June 19, 1927.

Poa compressa Linn, var. *langiana* Koch. Mr. R. R. Dreisbach has collected this variety at Budd's Lake, Harrison, Clare Co., No. 5164, July 31, 1927.

Poa glauca Vahl. Rocky shores of Keweenaw Co., rare. Not seen since the early and only collection. No. 853, July 5, 1885.

Poa crocata Mx. *Poa nemoralis* of local manuals. Usually in low, moist grounds or meadows. Clifton, No. 848 1-2, June 27, 1895; Copper Harbor, No. 850 1-2, July 1, 1895; Lake Linden, Nos. 8108, August 28, 1927 and 8263, August 22, 1928.

Poa pratensis Linn. June grass. Kentucky Blue Grass. Fields everywhere. This is one of the principal hay grasses of the Upper Peninsula; others are Timothy (*Phleum pratense* Linn) and Red Top (*Agrostis stolonifera* Linn). Red Clover (*Trifolium Pennsylvanicum* Willd.) and White Clover (*T. repens* Linn) also constitute a valuable part of the hay crop of that section. The leaves of June grass are rather broad and flat. Clifton, No. 388, June 20, 1886; Ypsilanti, No. 388a, June 21, 1892; Detroit, No. 388b, September 3, 1892; Rochester, No. 2669, June 11, 1912; Stony Creek, Oakland Co., No. 3448, June 18, 1913.

Poa pratensis Linn, var. *angustifolia* (Linn) Sm. Usually a lower plant with longer and narrower leaves often involute. Clifton, No. 848 1-3, June 28, 1895; Stony Creek, Oakland Co., No. 3446; June 8, 1913.

Agropyron caninum (L.) R. & S., var. *unilaterale* (Cassidy) Vasey. (*A. Richardsoni* (Trin.) Schrad.) A tall grass with a long, thick spike. Spikelets long and long awned. Inflorescence violet, secund. Rocky shores of Bete Gris Bay, Keweenaw Co., No. 8255, August 9, 1928.

Agropyron biflorum (Brign.) R. & S. Sandy grounds at the Canal, Houghton Co., No. 8256, August 10, 1928.

Agropyron repens (L.) Beauv. Wild Wheat. Robust

growth and a good host to *Ergot* which was plentiful. Ontonagon, No. 8267, August 23, 1928.

Avena fatua Linn. Wild Oat. Sandy places at the Canal, Houghton Co. The pubescence on the lemmas is *white*; the American descriptions I have seen always emphasize the *brownish* colors of these hairs; it may be something different, but European descriptions say brownish or white. No. 8258, August 10, 1928.

Avena fatua Linn, var. *glabrata* Peterm. The backs of the lemmas are glabrous. The Canal, Houghton Co., in sand, No. 8258a, August 9, 1928.

Calamagrostis neglecta (Ehrh.) Gaertn. Reed Grass. Mr. R. R. Dreisbach collected this species near Chesaning, No. 5120, July 24, 1928.

Agrostis stolonifera Linn, var. *major* (Gaud.) O. A. F.—Meadows and fields. Lake Linden, No. 8264, August 22, 1928.

Agrostis stolonifera Linn, f. *hispida* (Willd.) Farwell. Lower, more strict and with rougher panicles. Lake Linden, No. 8265, August 22, 1928.

Muhlenbergia Richardsonis (Trin.) Rydb. Very plentiful in a meadow near Hamburg. In the Twenty-first Annual Report of the Michigan Academy of Science, p. 350, I erroneously reported this species (No. 849 1-2 as *M. squarrosa* (Trin.) Rydb., which species is unknown in Michigan. No. 8271, August 29. The related *M. brevifolia* (Nutt.) Farwell (*Vilfa cuspidata* Torr.) I have collected but once in Michigan, then at Clifton, No. 848, June 27, 1895.

Sporobolus heterolepis A. Gray. Drop Seed. Not listed by Beal. The habitat of this species is usually given as "dry soil." It is plentiful in a meadow near Hamburg associated with *Muhlenbergia Richardsonii* and such other plants as *Solidago uliginosa, Tofieldia glutinosa, Parnassia palustris,* etc. No. 8270, August 29.

Stipa spartea Trin. Porcupine Grass. A tall, coarse grass, the fruit with a sharp, pointed callus and a long, bent awn; this grass is usually found in sandy soils. When in anthesis, the awns of the lemmas are straight and appressed

and at this time it looks quite different from its later stage with its spreading, geniculately bent awns. While drying in the press, however, the awns assume their twisted and bent condition. First collected at Island Lake, No. 1069a, July 16, 1905. Ypsilanti, No. 5239, June 15, 1919. Pontiac, No. 5270, June 29, 1919.

Panicum boreale Nash. In wet, sandy soil near Sanford. R. R. Dreisbach, No. 4926a, June 25, 1927.

Cyperus flavescens Linn. Galingale. "Galingale" appears to be a book name; I have never heard it used by anyone, botanist or otherwise, for any species of Cyperus. Rare in Michigan. Grosse Isle, No. 2183a, August 20, 1910.

Cyperus flavescens L., var. *bicolor* n. var. (*C. bicolor* Barton. *C. diandrus* Torr.) In the specific type the spikelets are yellowish and the flowers have three stamens. In this variety the stamens are two and the scales have a brownish border. Rare in Michigan. This variety usually passes current as *C. diandrus* Torr.; but under the International Rules, the correct specific name is *C. bicolor* Barton. Belle Isle, No. 1567, August 25, 1893. Birmingham, No. 1567a, September 9, 1897.

Cyperus flavescens L., var. *castaneus* Pursh.[1] In this variety, the scales are of a bright chestnut brown and are somewhat firmer than in the preceding. Typically the spikelets are shiny and brown all over; but there are intermediate specimens. Undoubtedly these groups are three variations of a cosmopolitan species. *C.rivularis* Kunth is the specific name of this variety. Abundant in Michigan. Belle Isle, No. 1344, September 23, 1892. Ballast grounds at Detroit, No. 1425 1-2 August 25, 1893. Linden Park (Detroit), No. 1809 1-2, August 15, 1903. Ypsilanti, No. 5343, August 31, 1919. Algonac, No. 7088, September 3, 1924. Marine City,

[1] In the herbarium of Parke, Davis & Co., there is a specimen, evidently of this variety, in which *all* the spikelets are *dark green* in color. Collected at Mobile, Alabama, in July, 1884, by C. Mohr. It may be known as subvar. *Mohrii* n. subv. Also some Mexican specimens under the name of *C. diandrus* var. *capitatus* Britton; this variety may be known as *C. flavescens* var. *castaneus* subvar. *capitatus* (Britt.) n. comb.

No. 6749, August 29, 1923. This was collected by Dr. George Suttie at Lotus Lake near Waterford, August 24, 1893.

Cyperus Schweinitzii Torr. I have seen this species only in the sands of the shores of Lake Erie in Monroe Co. where it is not frequent. No. 4574, September 9, 1917; No. 4574a, August 8, 1920; No. 4574b, August 27, 1924; No. 7795, September 8, 1926.

Cyperus filiculmis Vahl.[2] I have seen the typical form of this species, that is, the form with thinnish, yellowish scales, but once in Michigan. The heads are a trifle larger than those of the variety but the spikelets are of about the same length and of about the same number of flowers while the achene is a trifle larger.

Cyperus filiculmis Vahl., var. *macilentus* Fernald. In this variety the scales are *firmer*, slightly shorter *and green*, while the heads and achenes are a trifle smaller. Abundant on dry, sandy soils. In addition to previous records already published, this has been collected at Royal Oak, No. 5584c, August 12, 1920 and at Stony Creek, Monroe Co., No. 8085, August 17, 1927. (Corrections: — No. 2956 was collected July 28, 1912, and No. 4546, August 5, 1917. A specimen in the herbarium of Parke, Davis & Company, collected June 21, 1877, in Missouri, by H. Eggert and distributed as *C. filiculmis* is of this variety.)

Scleria triglomerata Mx[3] Nut Rush. Usually in low, grassy fields, but sometimes it is found in sandy soil. Near Stony Creek, Monroe Co., No. 5824, June 9 and No. 5913, July 6, 1921.

Arisaema triphyllum (Linn) Torr., var. *viride* (Engler) Farwell. Indian Turnip. Ortonville, No. 8136, May 23.

Allium cernuum Roth. Wild Onion. In open places. Scio, No. 8234, July 11. Collected previously at Superior, Nos.

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[2] I have also collected this small form of the species at Mt. Vernon, N. Y., as No. 5542, July 4 to 14, 1920.

[3] Also on Squirrel Island, Ontario, Canada, No. 5683, September 16, 1920.

6343 (Umbel erect) and 6346, August 9, 1922; Ypsilanti, No. 7683, October 14, 1925.(See p. 2.)

Allium vineale Linn. Garlic. Waste grounds at Ann Arbor, No. 8222, June 27.

Quercus coccinea Muench. Scarlet Oak. In the Manual of the Trees of North America by C. S. Sargent, Michigan is not included within the geographical limits accorded to this species. Sargent gives the range west of the Appalachians as S. Ontario, N. Y., Ohio, Ind., Ill., Wisc. to Mo. and Okla. Trelease, in his monograph of the American Oaks gives much the same range; giving the northern limits in the Mississippi Valley as S. Illinois and the western as Missouri. Gray's New Manual and the Illustrated give a range from Maine to Minnesota and southward. There is a wide discrepancy here. The winter buds of *Q. coccinea* are described by Sargent as ovoid, 1.5 to 3 lines long and by Trelease as 2.5 lines long. Those of *Q. ellipsoidalis* as 1.5 and 2 lines long by these authors respectively. It is evident that Sargent included in his *Q. coccinea* trees with winter buds of the size of *Q. ellipsoidalis;* such should be referred to *Q. ellipsoidalis,* leaving the ovoid winter buds of *Q. coccinea* to be about 2.5 to 3 lines long and those of *Q. ellipsoidalis* to be 1.5 to 2 lines long. In Michigan what is called the Scarlet Oak (*Q. coccinea*) is frequent enough in the Lower Peninsula. All that I have collected and reported as *Q. coccinea* has the small winter buds and pubescent cup scales characteristic of *Q ellipsoidalis* and should be referred here. These have a hemispherical cup with a conical base, while those previously reported as *Q. ellipsoidalis* have a turbinate cup; the fruit in the former is ovoid, but in the latter elliptical or fusiform. I have never seen the two forms on one tree. The former is abundant, the latter is scarce. The greater frequency of the form with the constantly ovoid fruit seems to warrant its separation as a variety, and it may be known as *Quercus ellipsoidalis* Hill, var. *coccinioides* n. var. (*Q. coccinea* Amer. authors in part). Reported as *Q. coccinea* in Amer. Mid. Nat.

(1928) XI, 81. I have not seen any *Q. coccinea* Muench. from Mich.

Allionia aggregata (Ortega) Spreng. Leaves green, smoothish ovate to linear-lanceolate, fleshy, glabrate. Stem glandular-hirsute. Flowers chiefly single in the axils and long pedicelled. Scio, No. 8231, June 27; Lakeland, No. 8279, August 29.

Allionia aggregata (Ortega] Spreng., var. *hirsuta* (Ph.) Farwell. Leaves usually narrower, often longer, more papillately rough, usually brownish or reddish, more or less hirsute; flowers in terminal panicles; Wayne, No. 7146, September 10, 1924.

Spergula arvensis Linn. Spurry. Dry, sandy soils near Calumet. No. 8262, August 22, 1928.

Silene antirrhina Linn, f. *bicolor* Farw. Another station along a newly opened road has been found for this form. Near Ann Arbor, No. 8213, June 20.

Syndesmon thalictroides (Linn) Hoffmg., var. *biternatum* Farw. In woods round about Ortonville, No. 8189, May 23. The f. *oppositifolium* Farw. was present but scarce in comparison, No. 8190.

Papaver somniferum Linn. Poppy. An escape at Ontonagon, No. 8268, August 23, 1928.

Lepidium virginicum Linn. Pepper grass. Abundant everywhere. The typical variation has lanceolate to oblanceolate leaves, the lowermost often pinnate or pinnatifid, the rest serrate and incised, up to 3 inches long by 1 inch wide. Ann Arbor, No. 8221, June 27.

Lepidium virginicum Linn, var. *linearifolium* n. var. All the leaves entire, narrowly linear-lanceolate or linear, up to 3 inches in length and 1.5 lines in width. Equally abundant. Ypsilanti, No. 8218, June 20; also Oxford, No. 6886, June 4, 1924.

Sedum ternatum Mx. Stonecrop. Ann Arbor. Here and there in the cemetery, but not as a decorative plant for the graves. Apparently a native station, as it gives no indication

of having been brought here by means of human aid, No. 8207, June 14.

Pyrus canadensis (Marsh.) n. comb. *Mespilus Canadensis* Marsh., Cat. Arb. et Arbris. (1788) 140, 141. *Pyrus melanocarpa* (Mx.) Willd. Chokeberry. Marshall calls this the Dwarf Red Fruited Medlar, describes it as of four or five feet in height and with red leaves, otherwise much resembling the preceding species (*Mespilus prunifolia*). When the *red* leaves (otherwise glabrous leaves) are contrasted with the *cottony* leaves of the preceding species, there is no doubt left as to the identity of *Mespilus Canadensis*. Under *Aronia* the proper name would be *Aronia canadensis* (Marsh.) n. comb. Doubtless Marshall's name should date from 1885, but I have not the English Ed. for confirmation. I have used Marshall's *Mespilus prunifolium* as a basis for a species of *Crataegus;* but Mr. Eggelston called to my attention the fact that Marshall's species is in a section of *Mespilus without thorns*, and therefore it cannot be a *Crataegus*. I had overlooked this divisional character. *Mespilus Prunifolium* Marshall can scarcely be other than *Pyrus Arbutifolia* (Linn) Linn f; and the variety he mentioned with larger fruit is doubtless the variety *atropurpurea* (Britton) Robinson.

Pyrus americana (Marsh.) DC. Mountain Ash. A large shrub or small tree with lanceolate, acuminate leaves and small fruit, 2 or 3 lines in diameter. Thickets. Keweenaw Co., No. 189, August 22, 1884.

Pyrus subvestita (Greene) n. comb.[4] A similar species with oblong, obtuse but abruptly pointed leaves and larger fruit, 4 or 5 lines in diameter. *Sorbus decora* Schneider. *P. Sitchensis* Gray's New Manual. *Subvestita* seems to be the oldest specific name applicable to this species. Keweenaw Co., No. 261, July 5, 1885. Lake Linden, No. 8261, August 15, 1928.

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[4] *Pyrus dumosa* (Greene) n. comb. *Sorbus dumosa* and *S. scopulina* Greene. Rocky Mountain region. This combination is necessary in order to place the species in the herbarium under its proper name.

Crataegus jasperensis Sarg. C. *polyclada* Sarg. Thorn Apple. A tree along roadsides, etc. The leaves are obovate, glabrous and lustrous; the corymbs are broad and loose, glabrous; there are 1 to 3 styles; the stamens are 20 with cream anthers; the young thorns are branches. Bloomfield, No. 8198, June 12.

Crataegus Crus-galli Linn var. *ovalifolia* (Hornem.) Lindl.; also var. *Prunifolium* Loud., Arb. et. Frut. Brit. (1838) II 821 and figure 576 p. 856; vol. VI pl. 109, excluding reference to Poiret. In a previous paper (20th Ann. Rept. Mich. Acad. Sci. (1918) 181, I quoted Marshall as the original author, assuming that Loudon based his varietal name on Marshall's *Mespilus prunifolium.* In this I was wrong. Loudon bases his variety on Bosc ex. DC, Prod. (1825) II 627. He also quotes Poir. Dict. (1797) IV 443. According to Eggleston [Rhodora (1908) X 75 and 76] Poiret's *Mespilus prunifolium* has glabrous leaves and corymbs, and therefore is not Bosc's nor Loudon's plants, which are described as with pubescent corymbs and glandular serrate calyx lobes; the latter is Eggleston's *C. Crus-galli* X *macracantha;* also *C. persimilis* Sarg. and *C. Farwellii* Sarg. Loudon's name dates from 1838; Torrey and Gray's var. *Prunifolium* (1840) is likewise the same. Its use for a glabrous variety in Gray's New Manual is therefore not legitimate under the International Rules. This glabrous variety (*Mespilus prunifolium* Poir. not Marsh.) is *C. Crus-galli* var. *attenuata* (Ashe) Farwell.

Lupinus perennis Linn, f. *bicolor* n. f. The standard is Dark Madder Violet, using Ridgeway's Color Standards (1912) and the other parts Deep Madder Blue. In the typical form of the species the flowers are concolorous (Chapman's Blue). Ortonville No. 8192, May 23.

Lupinus perennis Linn, f. *rosea* Britt. In this the standard is Pansy Purple and the other parts Rose Pink. These two forms and the species growing together form a picture of pleasing and striking contrasts. Ortonville, No. 8191, May 23.

Phaca neglecta T. & G., f. *Limonia* Farwell. When collected in the afternoon all the flowers were white and we

thought we had found the typical form, the white-flowered specific type, but the next morning showed that the buds developed into Lemon Yellow flowers in the vasculum during the night. Evidently the Lemon Yellow flowers of the morning have faded white by afternoon. The question now arises as to whether or not the original description calling for white flowers was based on faded flowers. Scio, No. 8230, June 27.

Lathyrus maritimus (L.) Bigel., var. *glaber* (Ser.) Eames. Beach Pea. Sandy Shores. Our plant is the glabrous variety. Keweenaw Co., No. 750, July 12, 1890; Canal, Houghton Co., No. 8257, August 10, 1928.

Lathyrus palustris Linn. Wild or Marsh Pea. Stems broadly winged, leaflets lanceolate. Rather scarce. Stony Creek, Monroe Co., No. 5821, June 9, 1921.

Lathyrus palustris Linn, var. *linearifolius* Ser. Leaflets linear, flowers smaller. Equally scarce. Detroit, No. 1378a, June 22, 1893.

Lathyrus palustris Linn, var. *myrtifolius* (Muhl.) A. Gr. Leaflets shorter and broader, elliptical. Stems angled but not winged. The commonest and most abundant form of the species in Michigan. Lakeland, No. 8254, July 25. Previously collected at Ypsilanti, No. 5242, June 15, 1919; Rochester No. 4231, June 24, 1916; Monroe, No. 5911, July 6, 1921; Algonac, No. 7432, June 17, 1925. A form with white or cream colored flowers is forma *pallidus* Farw. Orion, No. 5052, July 7, 1918.

Falcata Pitcheri (T. & G.) O. K. Hog Peanut. Climbing over low herbs along the borders of streams. Easily recognized by its large, coarse leaflets and its spreading or retrorse brown pubescence. Hammond Farm, Ypsilanti, No. 8241, July 18.

Toxicodendron (Tourn) Miller. This genus differs from *Rhus* (Tourn.) Linn in its glabrous or glabrate fruits with striate stones. It includes the Poison Dogwood and the Poison Ivy, both of which are common and abundant in Michigan. The author is immune to both species.

Toxicodendron Vernix (Linn) O. K. Poison Dogwood.

An inhabitant of swamps. Not observed in the Upper Peninsula but abundant in the s. e. section of the Lower Peninsula. Orion, No. 898, August, 29, 1895; Parkedale, No. 3262, October 27, 1912; Algonac, No. 2737, July 26, 1914.

Toxicodendron radicans (Linn) O. K. (*T. vulgare* Miller; *R. radicans* Linn). *Poison Ivy* is the all but universal name of this and the following species. Poison Oak is another name, and under this latter name the leaves are used as a therapeutic agent in medical practice. The stems of all these species creep underground and send up branches of varying habit. In this species the branches are erect but low in stature, sometimes clinging for a short distance by means of radicles to tree trunks, fences or other similar support; never climbing high nor ever scandent. Leaflets prevailingly entire, broadly oval or rhombic. Keweenaw Co., Nos. 256, July 5, 1885 and 1288b, July 5, 1895; Ypsilanti, No. 1288a, June 24, 1894; Belle Isle, No. 1560½, September 20, 1896; Detroit, No. 256a, May 27, 1905; Rochester, Nos. 256b and 1288c, September 18, 1907; Parkedale, No. 3252, October 27, 1912; Franklin, No. 5512, June 24, 1920; Nankin, No. 7412, June 10, 1925.

Toxicodendron radicans (Linn) O. K., var. *microcarpa* (Mx.) n. comb. (*R. Toxicodendron* var. *microcarpa* Mx.) It has smaller fruit and narrower, long acuminate leaflets. Rochester, No. 3669, June 11, 1914; Imlay City, No. 6693, August 15, 1923.

Toxicodendron radicans (Linn) O. K., var. *volubile* (Mill.) n. comb. (*T. volubile* Mill.) This variety has the broad leaflets of the specific type but they are prevailingly several toothed on each margin, generally near the base. The plant is a high climber and is both radicant and scandent. Belle Isle, No. 2014½, Oct. 4, 1906; Nankin, No. 7413, June 10, 1923.

Toxicodendron Rydbergii (Small) Greene. An upright shrub; doubtfully identified at time of collection as this species. Keweenaw Co., No. 1790 1-2, August, 1902.

Toxicodendron Toxicodendron (Linn) Britt. (*R. Toxicodendron* Linn; *T. pubescens* Mill.) A low upright shrub with densely pubescent leaves and twigs, the margins of the leaflets

toothed or incisely lobed. Belle Isle, Nos. 1288, August 6, 1892 and 1492, Oct. 19, 1894; Rochester No. 1492a, Sept. 18, 1907.

Toxicodendron glabrum Mill. An upright shrub often eight feet or more high. The erect branches, often two inches in diameter near the ground, are unbranched for a space of four or six feet and then spread out in a scraggily branched top; never radicant or scandent. A dense hedge is often formed many yards in extent. Leaflets as in *T. radicans*. Hamburg, No. 8243, July 25.

Aesculus glabra Willd. Ohio Buckeye. One roadside tree was seen and a seedling a foot or more high, evidently self-sown. Bloomfield, No. 8205, June 12.

Impatiens aurea Muhl. Touch-me-not. Along banks of streams at the Hammond Farm near Ypsilanti, No. 8240, July 18.

Viola pedata Linn. The typical form of this species with the upper petals dark violet, I have not seen in Michigan. In my paper on Michigan Violets in Papers, Vol. 2, Mich. Acad. Sci. Arts & Lets., this species is listed, but unfortunately, in the old sense; it should therefore have been *Viola pedata* Linn, var. *linariloba* DC., in order to have been properly understood as per the revised status of the species. Another collection is Rochester, No. 4502f, June 17, 1917.

Viola crassula Greene. Leaves thick or fleshy, glabrous or nearly so. The first time seen in midsummer growth. Lakeland, No. 8277, Aug., 1929.

Viola nephrophylla Greene. Frequent in boggy swamps from which it extends out and up along drier grounds into grassy fields and thickets. Under side of early leaves more or less purplish. Bloomfield, Nos. 8200 and 8202, June 12.

Viola triloba Schw. Beautiful specimens of this species were found in thin woods on the eastern border of Ann Arbor township. One flower only was seen, the flowering season having about passed. The leaves are less divided than in *V. palmata* and the earliest leaves are entire. No. 8216, June 20.

Viola sagittata Ait., var. *subsagittata* (Greene) Farwell.

Bloomfield, No. 8199, June 12. Also No. 4605a, June 5, 1919. I have made a rather complete study of this variety and of *V. fimbriatula* Sm. as they grow in southeastern Michigan, from spring unto autumn. I have not found the two growing together, nor have I found any intermediate stages. They are amply distinct and apparently have nothing in common. In Mr. Brainerd's letter to me he called No. 6879 and 6880 (Erie, May 21, 1914) *V. fimbriatula* and one of the parents of the new hybrid. On a slip of paper containing identifications only, he called the same numbers *V. sagittata*, western form more or less pubescent, toward *V. fimbriatula*; this disposition is certainly the more correct placement. I would place under this variety the numbers (6880, 6880a, 6884, 7856, 7992, 7855, 7307, 7307a) listed under *V. fimbriatula* in Amer. Mid. Nat. (1928) XI 66. This excludes *V. fimbriatula* from the region where the new hybrid (*V. nephrophylloides*) was found, and the parents would be *V. nephrophylla* and *V. sagittata* var. *subsagittata*. I have collected var. *subsagitatta* also at Erie under Nos. 6879, May 21, 1914, and 7004, July 30, 1924. Under this disposal of these plants the white flowered form described as *V. fimbriatula* f. *albescens* becomes *V. sagittata* Ait., var. *subsagittata* (Greene) Farwell, f. *albescens* (Farwell) n. comb.

Viola Novae Angliae House. In moist sand in the region of *V. fimbriatula* Sm. No flowers were seen; the capsules of the cleistogamous flowers and the sepals are more or less purplish. Foliage, pubescence, etc., are in accord with published descriptions and plates of this species. Is not *V. Alleghaniensis* R. & S. an older name for this species? Eloise, No. 8030, July 27, 1927.

Viola pubescens Ait., var. *scabriuscula* (Schw.) T. & G., f. *achlydophylla* (Greene) n. comb. *V. achlydolphylla* Greene. The flowers are cream colored. This can well be maintained as a color form. Near Farmington, No. 7879, May 8, 1927.

Viola pubescens Ait., var. *scabriscula* (Schw.) T. & G., f. *leiocarpa* (Fern. & Wieg.) Farwell (*V. dasyneura* Greene).

(See p. 1.) Near Standish Pond, Tecumseh, in rich woods, No. 7970, June 21, 1927.

Viola debilis Mx., Fl. Bor. Am. (1803) II 150. *V. conspersa* Rchb., var. *Masoni* Farwell. Perhaps *V. Muhlenbergii* Torr., var. *albiflora* Hook. ex Torr. & Gr. Flowers, white. I have no doubt but that Michaux's white flowered *V. debilis* is the albino form of what has come to be known as *V. conspersa* Reichb., which may now become a color form of *V. debilis* under the formal name *Muhlenbergii* (Torr.) n. comb.

Oenothera laciniata Hill. Evening Primrose. Sandy Hills; a luxuriant growth. Hammond Farm, Ypsilanti, No. 8237, July 18.

Circaea lutetiana Linn. Enchanter's Nightshade. The typical variety of the species is European and is not found in this country. We have several varieties.

Circaea lutetiana Linn, var. *canadensis* Linn. This is our largest as well as our most abundant variety and most nearly approaches the European type. Belle Isle, No. 1255, July 16, 1892; Parkedale, No. 2850, July 14, 1912; Dearborn, No. 4514b, July 8, 1917; Junior, No. 5076a, July 3, 1918; Flat Rock, No. 7450, July 1, 1925.

Circaea lutetiana Linn, var. *intermedia* (DC) Farw. This is intermediate between the preceding and the next. Some think it may be a hybrid. Rochester, No. 3814½, Aug. 9, 1914; Dearborn, No. 4514a, July 8, 1917; Junior, No. 5063, July 13, 1918; Flat Rock, No. 7449, July 1, 1925.

Circaea lutetiana Linn, var. *alpina* (Linn) Farw. This variety extends much farther north than the others and is the only one found in Keweenaw Co. Keweenaw Co., No. 121, June 30, 1884; Dearborn, No. 4513a, July 8, 1917; Washington, No. 6204a, June 21, 1922.

Asclepias pulchra Ehrh. Swamp Milkweed. This has broader leaves and paler flowers than *A. incarnata*, besides being pubescent. Borders of streams, swamp lands, etc. Scarce. Hamburg, No. 8249, July 25.

Asclepias Gladewitzii n. sp. The stem is about 8 inches high with a single terminal peduncle of about equal length but

more slender, both purplish and more or less glaucous, glabrous; leaves ovate or ovate-oblong, sessile, cordate clasping, rounded or retuse at the apex and mucronulate, up to four inches in length, pale green above with a purple midvein, paler beneath or glaucous, glabrous on both sides; peduncle terminated by a single, many flowered umbel, the weak rays 2-2.5 inches long, recurved so that peduncle and umbel resemble an open umbrella; pedicels silghtly downy; corolla segments oblong, acute, greenish purple, 5-7 lines long, the hoods greenish below, purplish above, longer than the anthers, shorter than the incurved horns. Related to *A. amplexicaulis* Sm., but has larger flowers and recurved, longer, and more slender pedicels. Along the railroad tracks at Scio, No. 8229, June 27.

Volvulus spithameus (L.) Farw. Sow Bindweed. The stems are erect or ascending two inches to two feet long, the longer ones often becoming procumbent or twining, softly pubescent to glabrate, as are the leaves, single or two or three together, simple or branched at the base; the leaves are *green*, suborbicular to ovate—or obovate—oblong (.38 to 1.50 inches wide by .75 to 2.50 inches long) from truncate to sagittate or sagittately cordate at base, abruptly narrowed at the apex to a short, rounded projection or more gradually narrowed and acute. The flowers are single in the axils of the leaves, usually 1-3 in the lowermost axils, but they may extend upward almost to the top of the stem, until there are ten or more flowers and buds on the stem at the same time. The earliest peduncles often fall early, especially if the flower is unfructified, so that many plants appear to have flowers only at the middle of the stem. Also, the flowers may be on the stem only; on the branch only; or on both. The arrangement of the flowers as to the part of the stem bearing them and their numbers, I have found to be quite unstable. Includes *Convolvulus camporum* Greene. I can see no way of separating the short erect form from the long and twining; the former may be transformed into the latter during the course of a season. Ypsilanti, 8217, June 20. Previously collected at

Ypsilanti, No. 293a, June 21, 1892; Detroit, No, 293b, June 25, 1910; Rochester, No. 3658, June 7, 1914; Algonac, No. 3972, June 16, 1915; Romulus, No. 6165, June 7, 1922; Oxford, No .6924, June 25 and July 23, 1924; Orion, No. 6930, June 25 and July 23, 1924.

Volvulus spithameus (L.) Farw., var. *stans* (Mx.) Farwell. The *whole plant* is densely *grayish tomentose*, the tomentum becoming yelolwish-brown with age. Shorter, more erect and less inclined to twine. The tomentum completely conceals the epidermal surfaces. The range of this densely tomentose variety is strictly northern, in so far as I have been able to determine. I have not seen any specimens from the Southern Peninsula of Michigan. The northern range and dense tomentum are sufficient characters to maintain it as a variety. It should be looked for in high mountain altitudes further south in the Appalachians. Isle Royale, *Ranson*, July 2, 1868. Cliff Mine, *Farwell*, No. 293, August 1, 1885.

Vovulus japonicus (Thunb.) n. comb. (*Convolvulus japonicus Thunb.*) A native of Japan. Single flowered. A completely double-flowered form is in cultivation and has escaped. It may be known as *Volvulus Japonicus* (Thunb.) Farw., var. *pubescens* (Lindl.) n. comb. (*Convolvulus pubescens* (Lindl.)* Detroit, No. 1646, July 15, 1899.

* The following new publications are necessary in order to keep the species in the herbarium of Parke, Davis & Co. under their proper names.

Volvulus atriplicifolius (House) n. comb. (*Convolvulus Atripilicifolius* House).

Volvulus macrostegius (Greene) n. comb. (*Convolvulus macrostegius* Greene).

Volvulus occidentalis (A. Gr.) n. comb. (*Convolvulus occidentalis*, A. Gr.)

Volvulus occidentalis (A. Gr.) Farw., var. *angustissimus.* (A. Gr.) n. comb. (*Convolvulus occidentalis* A. Gr., var. *angustissimus* A. Gr.)

Volvulus sepium (L.) Medic, var. *pubescens* (A. Gr.) n.

comb. (*Convolvulus sepium* L., var. *pubescens*. A. Gr. *C. Nashii* House; *C. interior* House; *C. Americanus* Greene).

Volvulus villosus (A. Gr.) n. comb. (*Convolvulus villosus* A. Gr.) This species is, according to literature, confined to California. We have a specimen that reads "San Diego, Tex., Miss. M. B. Croft, 1884."

Hedeoma hispida Ph. Pennyroyal. Sandy hills at the Hammond Farm, Ypsilanti, No. 8239, July 18.

Solanum Dulcamara Linn, var. *canescens* Farwell. Two other stations for this rare, cinereous or canescent variety were found near Ann Arbor. No. 8215, June 20; and No. 8226, June 27.

Sonalum Dulcamara Linn, var. *pubescens* R. & S., f. *albiflorum* Farwell. This is the common White Bittersweet with spreading, hirsute pubescence. Ypsilanti, No. 8219, June 20. Ann Arbor, No. 8227, June 27.

Veronica Dillenii Crantz. (See p. 1.) Along roadsides, on sandy hillsides, in sandy fields and cultivated grounds everywhere about Ortonville. It looks much like *V. arvensis* but the leaves are pinnate or pinnatifid. No. 8186, May 23.

Veronica officinalis L. Common Speedwell. See note under *Sedum ternatum* which applies to this equally well. Ann Arbor, No. 8206, June 14. Previously collected on Belle Isle, No. 1817, June 7, 1904, and at the Delaware Mine, No. 3995, June 29, 1915.

Pendicularis lanceolata Mx., var. *hirsuta* Farwell. Excellent specimens of this variety as to pubescence were gathered at Lakeland, though not yet in flower. No. 8273, August 29.

Plantago aristata Mx., var. *Nuttallii* (Rapin) Morris. Plaintain. Plants usually not over three inches in height with mostly one-flowered scapes. Leaves filiform, green, shorter than the pubescent scapes which are densely white pubescent above. In sandy places, Bloomfieldfi No. 8204, June 12. Previously reported (No. 5504) as *P. spinulosa* Decne.

Plantago Purshii R & S. Sandy hills at the Hammond Farm. Ypsilanti, No. 8238, July 18.

Plantago cordata Lam. Hammond Farm near Ypsilanti, No. 1087, May 28, 1891.

Solidago uliginosa Nutt. Goldenrod. In a meadow near Hamburg where plentiful. No. 8272, August 29.

Solidago Fisheri Steele. Goldenrod. Upland fields. Not yet in flower but the plant agrees in every particular with the description of stem and leaves. Hamburg. No. 8250, July 25. In bud only, August 29.

Solidago canadensis Linn. One of our most abundant species of Goldenrod. Keweenaw Co., No. 493, July 28, 1887; Orion No. 4699, October 11, 1917; Slocum's Island, No. 5988, August 31, 1921; Utica, No. 6091, Oct. 5, 1921.

Solidago canadensis Linn, var. *gilvanocanescens Rydb.* Has broader leaves and is canescent throughout. Detroit: No. 491c, August 22, 1895; No. 491d, August 1, 1903; No. 493 a, August 15, 1903. Rochester, No. 5195, October 10, 1918.

Solidago lepida DC., var. *fallax* Fernald. A very pubescent form found in shaded, wet ravines. According to Mr. Fernald my plant belongs here. Keweenaw Co., No. 491, September 12, 1886.

Solidago altissima Linn. As pointed out by Mr. Fernald, this species has much larger flowering heads than has *S. canadensis* and is its var. *scabra* of Torry & Gray. Lakeland, No. 8274, August 29. Previously at Belle Isle, No. 491a, Sept. 3, 1892; Keweenaw Co., No. 491b, June 27, 1895; Franklin, No. 5167, Sept. 22, 1918; Utica, No. 6092, October 5, 1921.

Solidago altissima Linn, var. *procera* (Ait.) Fern. Softly pubescent. Flowering later than the species. Lakeland, No. 8275 (in bud only) Aug. 29. Previously in Keweenaw Co., No. 492, Sept. 12, 1886; Detroit, No. 492a, Aug. 15, 1903, and No. 4131, Oct. 22, 1915; Parkedale, No. 4017, Sept. 3, 1915; Frankliin, No. 5168, Sept. 22, 1918; Farmington, No. 6047, Sept. 28, 1921; Ypsilanti, No. 7685, Oct. 14, 1925.

Solidago serotina Ait. Frequent in moist, rich soils. Keweenaw Co., No. 500, July 28, 1887, and Nos. 723, 723a, and 723b, Sept. 1, 1889; Orion, No. 723c, Aug. 29, 1895; Detroit,

No. 500a, Sept. 24, 1900. Rochester, No. 2971, Aug. 4, 1912 and No. 5183, Oct. 6, 1918.

Solidago serotina Ait., var. *gigantea* (Ait.) A. Gr. Larger, leaves more or less pubescene beneath. Keweenaw Co., No. 826, August 30, 1890; Detroit, No. 826a, September 27, 1895; Parkedale, Nos. 3254 and 3278, October 27, 1912; Rochester No. 5198, October 10, 1918 and No. 7667, September 30, 1925 (Previously reported as *S. lepida*).

Silphium laciniatum Linn. Rosinweed. Along the railroad track near Ann Arbor. Scarce, No. 8224, June 27.

Heliopsis helianthoides (L.) Sweet. Ox-eye. Banks of Paint Creek, Ypsilanti. Scarce, No. 8236, July 18.

Heliopsis scabra Dun., var. *intermedia* Farw. Banks of the Huron River near Ann Arbor. Scarce. No. 8233, July 11, 1928.

Brauneria angustifolia (DC.) Heller. Black Sampson. The rays are rather stiff, white with two teeth, one to two inches long, spreading horiizontally but not drooping. Along the railroad tracks. Scio, No. 8229, June 27.

Anthemis arvensis Linn, var. *agrestis* (Wallr.) DC. Corn Chamomile. This variety with the chaff shorter than the flower seems to be quite as frequent as the typical form of the species. Bloomfield, No. 8203, June 12.

Centaurea Picris Pall. Star Thistle. (See p. 2) Plentiful along the railroad tracks near Ann Arbor. I wish to thank Mr. S. F. Blake for confirmation of identification. I am using the name that Mr. Blake, at least for the present, thinks to to be more accurate and therefore the more preferable. Dr. A. Von Hayek of Europe, like the Californians, uses *C. repens* Linn as the proper name for the species called *C. Picris* by Pallas. No. 8225, June 27 and July 11.

Tragopogon neohybridus n. sp. (*T. porrifolius* x *pratensis* var. *tortilis*). For several years I have been puzzled to place a wild Salsify with *red* flowers. These red flowered plants were always seen from the window of an electric interurban car. This year I determined to thoroughly investigate and collect specimens. Apparently these red flowered plants are

the results of natural crosses of the species named above. The color of the flower is an exact intermediate which has been proved by mixing paints of the colors of the respective flowers of the parents. The ligulate corollas of *T. porrifolius* are Light Perila Purple and about one half the length of the involucral scales, the peduncle thickened and fistulous under the head. *T. pratensis* var. *tortilis* has Lemon Yellow corollas as long as the scales and the peduncles, little swollen under the head; the ends of the leaves are curled and twisted. In *T. neohybridus* the flowers are a Neutral Red and the corollas are of the same length as, or slightly shorter than, the scales; the peduncles are little too much swollen under the head; the leaves on some plants are corkscrew-shaped as in *T. pratensis* var. *tortilis* and on others straight and flat is in *T. porrifolius*. It has much the appearance of a red flowered *T. pratensis* or of its var. *tortilis*. The color nomenclature is that of Ridgeway (1912). Nos. 8210 and 8211, Ann Arbor township, June 20.

Tragopogon pratensis L., var. *tortilis* Mey. With the preceding and by far the most abundant, constituting about 90 per cent of the colony. No. 8212.

Tragopogon porrifolius Linn. With the above. No. 8208. A variation of this has the corrollas and involucral scales of the same length. It does not differ in other respects. It may be known as *T. porrifolius* Linn, var. *aequalis* n. var. If this variety is the result of a cross between the purple and yellow flowered species, the only influence of the yellow flowered species observable is in the shortning of th involucral scales; some of the corrollas dry out red. No. 8209. With the above.

Tragopogon major Jacq. A third station for this species has been found in Michigan, this time in Scio township, Washtenaw County, the second station for this county. We observed about 100 plants. No. 8228, June 27.

Hieracium longipilum Torr. Hawkweed. In sandy fields. The long, stiffly ascending, *white* hairs are a conspicuous feature of the plant. Scarce. Hamburg, No. 8244, July 25.

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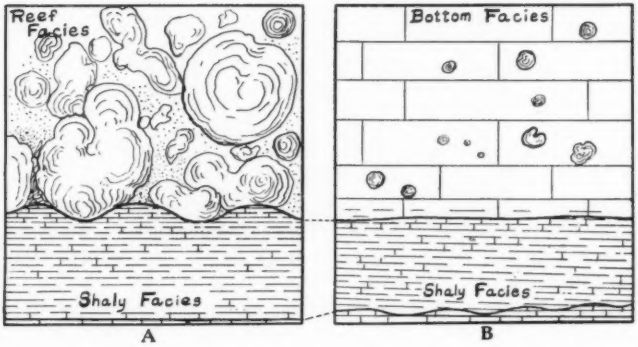
"CAMPELOMA DECISA" SAY, A UNIVALVE SHELL IN FURNESSVILLE BLOWOUT, DUNES OF PORTER COUNTY, INDIANA.

MARCUS WARD LYON, JR.
South Bend, Indiana.

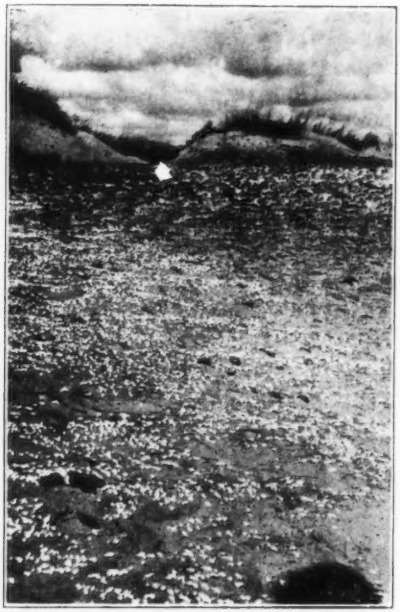
On the floor of Furnessville Blowout, (Rand McNally's *Map of Indiana Dunes* by P. S. Goodman, 1920, one and three-quarters miles east of Waverly Beach, Dunes State Park is a comparatively large bed of somewhat weatherworn univalve shells, *Goniobasis livescens* Menke Their occurrence was reported on by me in the Proceedings for the 38th Annual Meeting of the Indiana Academy of Science page 123, 1922 (1923).

Some years later I picked up in the same place three specimens of a much larger shell. Like the others these have been



deposited in the United States National Museum. Dr. Paul Bartsch of that institution has kindly identified them for me as Campeloma decisa Say, a species which he says occurs in Pleistocene and also in Recent times. Neither of these species

is referred to by Dr. George Babcock Cressey in *The Indiana Sand Dunes and Shore Lines of the Lake Michigan Basin*, 1928. With reference to the present shore line of Lake Michigan these specimens are about 140 yards inland from the present beach and about 15 feet above the present level of the lake.



It is difficult to understand how these univalves could have lived on the shore line of so rough and stormy a lake as that of Michigan or its predecessors. The suggestion if offered that the site of their occurrence corresponds to the shore line of an old lagoon or small lake behind the ancient dunes such as Long Lake of the present day at the western edge of Porter County. In all probability the shells have been covered

with sand for very many years and only comparatively recently uncovered in the formation of the blowout.

The accompanying illustration taken form my original note, shows the bed of shells, the small white objects in the foreground being *Goniobasis livescens*. In the distance are some low fore-dunes beyond which lies Lake Michigan.

"DIGITARIA" VERSUS "SYNTHERISMA"

Oliver Atkins Farwell

Under the code that adheres to the principles of the "once a synonym always a synonym," the name *Digitaria* perhaps can not be used for the group of species of which *Panicum sanguinale* Linn may be taken as the representative. As early as 1911, Mrs. Agnes Chase had shown that *Digitaria* Heist. ex Fabr. (1759) at least in part is synonymous with *Paspalum* Linn, Sys., Ed. 10 (1759) II 855. It has not been shown which name was published first, and therefore it is still a moot question whether *Panicum dissectum* Linn and its allies should be designated as *Paspalum* Linn or as *Digitaria* Heist.; or whether or not the latter name may be used for *Panicum sanguinale* Linn. In *Rhodora* for March, 1928 (Vol. XXX, pp. 49-52) Mr. K. K. Mackenzie confirms the conclusion of Mrs. Chase and reprints Heister's original description (pre Linnaean) of *Digitaria*. It is there shown that Heister's genus is a complex consisting of *Dactylis* Royen (itself a complex) and the species later known as *Panicum sanguinale* Linn.

In the first edition of Fabricius' *Enumeratio Methodica Plantarum* (1759) 207, Heister's *Digitaria* is supposed to have been adopted for one of Sloane's species, which is *Paspalum virgatum* Linn. If so this makes the two genera, *Paspalum* Linn (1759) and *Digitaria* Heist. ex Fabr. (1759) synonymous. The one first published is the correct name to use. Which is it? It is doubtful if this can be definitely determined at this late day; and if it cannot be determined, *Digitaria Heister* (1759) will, by common consent, be sunk as a synonym of the name *Paspalum*, which has held undisputed sway for this group of species ever since it was published.

My own impression is that Fabricius, in the first edition

of the Enumeratio, intended to include under *Digitaria* the species now included under *Paspalum* Linn, *Syntherisma* Walt., and perhaps other groups with similar inflorescences; but that later he removed *Paspalum*, retaining the name for the group of *Panicum sanguinale* Linn.

I think that there is some internal evidence that the Tenth Edition of the *Systema* appeared before the *Enumeratio*. This is based upon the fact that only four years later Fabricius published a second edition of the *Enumeratio*, and in this later edition he still retained *Digitaria* Heister, but *he had changed its significance*. Why? Probably because the *Systema* had appeared before the *Enumeratio*, and he knew, therefore, that *Digitaria* of the first edition *could not and would not be retained* in its original significance, but wishing, nevertheless, to maintain Heister's *Digitaria*, he accomplished his desire by making the second element [the "Mannaria (programine mannae)"—*Panicum sanguinale* L.] of Heister's original genus, the type of the genus instead of the first element, as in 1759. Under the International Rules, *Digitaria* Heist. ex Fabr., Edition 1 (1759) 207, in part, (excl. Sloane reference) and Edition 2 (1763) p. 374, is the correct name for the Crab Grasses, and is typified by *Panicum sanguinale* Linn.

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BOOK REVIEWS

HANDBOOK OF PALEONTOLOGY FOR BEGINNERS AND AMATEURS. PART I.—THE FOSSILS, by Winifred Goldring. New York State Museum Handbook 9, 356 pp. $1.50.

There long has been need for some inexpensive book which would present, in a not too technical manner, the essential material of paleontology. That one at least has appeared, written by an author experienced in both research and museum exhibition, is an occasion for rejoicing.

To paleontologists, Miss Goldring is known for her able researches on Devonian plants and invertebrates. To museologists she is familiar as the originator of the famous "What is a Fossil?" exhibit in the New York State Museum, an exhibit which many of them,—including the present reviewer,—have undertaken to reproduce in other institutions. For them it is necessary only to say that Miss Goldring's book shows the same sense of values and proportion that are found in her museum cases, yet goes far beyond them into the field of paleontology.

Yet not too far, nor too hastily. Miss Goldring builds upon a biologic basis more firmly than does any paleontologic text book of equal scope and comparable size. It opens with a discussion of the kinds of fossils with regard to replacement, original material, and relationship to the original entire organism, with accompanying sections on the methods of handling and studying material. There is a convenient time-scale, adapted from Schuchert, and a condensed classification of animals. This is the one part of the book which seems to justify disagreement, since on the one hand it retains the Brachiopoda and the Bryozoa in the phylum Molluscoidea, and on the other dignifies the Vertebrata as a separate phylum.

After this introductory material comes the taxonomic portion of the book: 213 pages, of which 152 are devoted to non-chordate phyla. It is here that Miss Goldring's emphasis on the morphology of living types becomes evident, for she precedes almost every description of a fossil group with an illustrated account of one of its modern representatives. There is no need to go into details of treatment, for it includes nothing necessary and leaves out little that should have been inserted. One wishes that more had been said about habits, especially in connection with those organisms whose ways, even today, are none too familiar. Natural history tempers, and often gives point, to general morphology, and outweighs a dozen translations from the Greek as an arouser of interest.

The treatment of vertebrates is properly brief, in keeping with their place in the animal kingdom and their scanty representation among New York fossils. The section on plants is limited to 50 pages—a restriction which one regrets in view of the excellent treatment, and the fact that they generally are omitted entirely from texts of paleontology. A more extended discussion of them would have added much to the value of the book as collateral reading for students in historical geology.

Of course, it is not such students that Miss Goldring had in mind when she wrote her book. Yet if one were confronted with the task of selecting a book to be put in the hands of beginning college students, he would find none better. The abundant illustrations, the orderly presentation, the freedom from bias—except, perhaps, an unnecessary adherence to conservative classification—make this book one which will perform good service in college libraries. Perhaps, in the hands of the few teachers left who still approve the amateur, it will do more, and actually encourage people to study fossils for the fun there is in doing so, rather than because the information so gathered can be used in finding oil.

—C. L. F.

THE ESSENTIALS OF HUMAN EMBRYOLOGY. Gideon S. Dodds. John Wiley and Sons, Inc. $4.00

It has become increasingly evident in recent years that the curriculum of the medicals chools is somewhat overloaded so far as student capacity is concerned, but the only relief in sight under the present scheme of organization in higher education, would seem to consist in placing some of the subjects of the preclinical years in the premedical, (liberal arts) curriculum. The tendency in this direction is possibly indicated by the fact that certain medical schools have indicated embryology as a prerequisite. Accordingly no greater justification is needed for the type of textbook which Professor Dodds has given us, for while this work is written primarily for medical students, it is also readily comprehended by those who have had courses in collegiate Histology and Comparative Anatomy. This type of text therefore, written from the human rather than from the comparative embryological standpoint, is in a way prophetic of future developments in the biological section of the liberal arts curriculum. In remarkably concise space, but still in a very readable style, the author presents an admirable foundation for obstetrics and includes an excellent section of anomalies in development. Clean cut illustrations aid in giving it a high coefficient of "usability." This book is to be highly recommended for the purpose stated, while the general practitioner will find it a valuable addition to his library.—Reviewed by N. M. Grier, Evansville College, Evansville, Indiana.

FLORA OF THE INDIANA DUNES, Donald Culross Peattie. Published by Field Museum of Natural History, Chicago, 1930.

The need of a comprehensive "Flora" of the dunes of the south shore of Lake Michigan has been felt long ago by everyone who has visited this unique region either as a nature-lover and amateur botanist or as a man of science. The author presents the results of many years of collecting

and extensive herbarium-study of plants found in this particular stretch of Northern Indiana. The preface gives a short report of former publications on the same region, besides mentioning all the collaborators, who have contributed various parts. A chapter, entitled "Plant Hunting in the Dunes," precedes the "Flora" itself. Directions as to localities are briefly indicated and, if followed, will save the collector much time in finding what he seeks. Over 1300 species of ferns and flowering plants are recorded, each one treated in a brief description with valuable notes on distribution, frequency, habitat and collectors. Easily and clearly written keys enable even the beginner to trace and identify his plants. There are 38 good plates of plants familiar to almost everybody and accessible in similar books. The book has real value for the professional botanist, even though he may not agree in every case with the author's nomenclature. The book can be recommended for all the advantages indicated. The Field Museum Press is to be congratulated for the fine workmanship evident in the edition.—T. J.